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What is claimed is:

- 1        1. A topographic data processor comprising:  
2            means for selecting a pair of frames from a plurality of candidate  
3            picture frames of a target area captured from different high-altitude  
4            positions, said pair of frames constituting a stereoscopic image of said target  
5            area;  
6            means for determining a parallax between the selected frames and  
7            producing therefrom a first plurality of line-of-sight vectors and a second  
8            plurality of line-of-sight vectors; and  
9            means for converting said first and second pluralities of line-of-sight  
10          vectors to topographic data.
  
- 1        2. A topographic data processor as claimed in claim 1, wherein  
2          said frame selecting means comprises:  
3            frame combining means for combining said candidate frames into a  
4            plurality of pairs of frames which constitute a stereoscopic image of said  
5            target area; and  
6            evaluating means for evaluating each of said pairs of frames with a  
7            fitness value indicative of fitness of said each pair of frames to topographic  
8            measurement of said target area.
  
- 1        3. A topographic data processor as claimed in claim 2, wherein  
2          said evaluating means comprises:  
3            a geometric condition analyzer for analyzing said pairs of frames in  
4            terms of their geometric condition and evaluating said pairs of frames with a  
5            fitness value proportional to their image resolution; and  
6            decision making means for making a decision on the fitness values  
7            obtained from all pairs of frames and selecting one of said pairs of frames  
8            having the highest fitness value.

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1        4. A topographic data processor as claimed in claim 3, wherein  
2 said parallax determining means determines a parallax between the frames of  
3 each said pair of frames, and

4        wherein said evaluating means further comprises frame matching  
5 analyzing means for analyzing said pairs of frames in terms of degree of  
6 match between the paired frames and evaluating said pairs of frames with a  
7 fitness value proportional to an average value of point-to-point correlations  
8 between said paired frames,

9        wherein said decision making means produces a total value of the  
10 fitness values of each of said pairs of frames and selecting one of said pairs of  
11 frames having the highest total value.

1        5. A topographic data processor as claimed in claim 2, wherein  
2 said parallax determining means comprises:

3        frame aligning means for aligning the frames of said selected pair in  
4 orientation; and

5        correlation calculating means for calculating point-to-point  
6 correlations between the aligned frames.

1        6. A topographic data processor as claimed in claim 4, wherein  
2 said parallax determining means comprises:

3        frame aligning means for aligning the frames of said selected pair so  
4 that the frames are equally oriented; and

5        correlation calculating means for calculating point-to-point correlation  
6 values between the aligned frames and supplying the calculated correlation  
7 values to said frame matching analyzing means, and

8        wherein the frame matching analyzing means calculates said average  
9 value of point-to-point correlations from the correlation values supplied from  
10 the correlation calculating means.

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1           7. A topographic data processor as claimed in claim 4, wherein  
2 said parallax determining means further comprises an interpolator for  
3 interpolating one of the paired frames before said frames are aligned in  
4 orientation so that said frames of said pair have equal value of resolution.

1           8. A topographic data processor as claimed in claim 2, wherein  
2 said evaluating means further comprises filtering condition analyzing means  
3 for analyzing each of said pairs of frames in terms of filtering condition and  
4 evaluating each said pair of frames with a fitness value representative of  
5 filtering characteristics of image sensors.

1           9. A topographic data processor as claimed in claim 2, wherein  
2 said evaluating means further comprises sunlight condition analyzing means  
3 for analyzing each of said pairs of combined frames in terms of sunlight  
4 condition and evaluating each said pair of frames with a fitness value  
5 representative of degree of similarity in shadow and shading effects between  
6 the frames of each said pair.

1           10. A topographic data processor as claimed in claim 2, wherein  
2 said evaluating means further comprises time difference analyzing means for  
3 analyzing each of said pairs of combined frames in terms of time difference  
4 and evaluating each said pair of frames with a fitness value inversely  
5 proportional to a time difference between the instant one of the frames of said  
6 each pair is captured and the instant the other frame is captured.

1           11. A topographic data processor as claimed in claim 1, further  
2 comprising storage medium for storing a plurality of picture frames captured  
3 by airborne image sensors, wherein said selecting means selects said pair of  
4 frames from said storage medium.

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1           12. A topographic data processor as claimed in claim 10, wherein  
2 said frame combining means includes area selecting means for selecting  
3 picture frames covering said target area from all picture frames stored in said  
4 storage medium.

1           13. A topographic data processor as claimed in claim 1, further  
2 comprising an image sensing scheduler comprising:  
3           image sensor selecting means for selecting at least one airborne image  
4 sensor if an appropriate frame is not available to constitute said stereoscopic  
5 image and sensing picture frames from the selected image sensor;  
6           frame combining means for combining the sensed picture frames to  
7 form a plurality of pairs of received frames which may constitute a  
8 stereoscopic image of said target area;  
9           evaluating means for evaluating each pair of sensed frames with a  
10 fitness value indicative of fitness of said each pair of frames to topographic  
11 measurement of said target area; and  
12          means for producing a schedule for selecting one or more airborne  
13 sensors based on the fitness values obtained from all pairs of sensed frames.

1           14. A topographic data processor as claimed in claim 13, wherein  
2 said evaluating means comprises a geometric condition analyzer for  
3 analyzing said pairs of sensed frames in terms of their geometric condition  
4 and evaluating said pairs of frames with a fitness value inversely  
5 proportional to quantum errors between the frames of each said pair.

1           15. A topographic data processor as claimed in claim 14, wherein  
2 said evaluating means comprises filtering condition analyzing means for  
3 analyzing each of said pairs of sensed frames in terms of filtering condition  
4 and evaluating each said pair of sensed frames with a fitness value  
5 representative of filtering characteristics of image sensors.

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1           16. A topographic data processor as claimed in claim 14, wherein  
2 said evaluating means further comprises sunlight condition analyzing means  
3 for analyzing each of said pairs of sensed frames in terms of sunlight  
4 condition and evaluating each said pair of sensed frames with a fitness value  
5 representative of degree of similarity in shadow and shading effects between  
6 the frames of each said pair.

1           17. A topographic data processor as claimed in claim 14, wherein  
2 said evaluating means further comprises time difference analyzing means for  
3 analyzing each of said pairs of sensed frames in terms of time difference and  
4 evaluating each said pair of sensed frames with a fitness value inversely  
5 proportional to a time difference between the instant one of the frames of said  
6 each pair is captured and the instant the other frame is captured.

1           18. A topographic data processor comprising: ✓  
2           frame selecting means for selecting a pair of frames from a plurality of  
3 candidate picture frames of a target area captured from high-altitude  
4 positions, said selected pair of frames constituting a stereoscopic image of  
5 said target area;  
6           scheduling means for selecting at least one airborne image sensor if an  
7 appropriate frame is not available in said plurality of candidate frames,  
8 sensing picture frames from the selected image sensor, whereby said frame  
9 selecting means uses the sensed frames to select a pair of frames;  
10          means for determining a parallax between the frames selected by the  
11 frame selecting means and producing therefrom a first plurality of line-of-  
12 sight vectors and a second plurality of line-of-sight vectors; and  
13          means for converting said first and second pluralities of line-of-sight  
14 vectors to topographic data.

1           19. A topographic data processor as claimed in claim 18, wherein

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2     said frame selecting means comprises:

3                 means for combining the received picture frames to form a plurality of  
4     pairs of sensed frames which may constitute a stereoscopic image of said  
5     target area;

6                 evaluating means for evaluating each pair of sensed frames with a  
7     fitness value indicative of fitness of said each pair of frames to topographic  
8     measurement of said target area; and

9                 scheduling means for producing a schedule for sensing picture frames  
10    from one or more airborne image sensor based on fitness values obtained  
11    from all said pairs of sensed frames.

1         20.    A topographic data processor as claimed in claim 19, wherein  
2     said evaluating means comprises a geometric condition analyzer for  
3     analyzing said pairs of sensed frames in terms of their geometric condition  
4     and evaluating said pairs of frames with a fitness value inversely  
5     proportional to quantum errors between the frames of each said pair.

1         21.    A topographic data processor as claimed in claim 20, wherein  
2     said evaluating means further comprises filtering condition analyzing means  
3     for analyzing each of said pairs of sensed frames in terms of filtering  
4     condition and evaluating each said pair of sensed frames with a fitness value  
5     representative of filtering characteristics of image sensors.

1         22.    A topographic data processor as claimed in claim 20, wherein  
2     said evaluating means further comprises sunlight condition analyzing means  
3     for analyzing each of said pairs of sensed frames in terms of sunlight  
4     condition and evaluating each said pair of sensed frames with a fitness value  
5     representative of degree of similarity in shadow and shading effects between  
6     the frames of each said pair.

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1        23. A topographic data processor as claimed in claim 20, wherein  
2        said evaluating means further comprises time difference analyzing means for  
3        analyzing each of said pairs of sensed frames in terms of time difference and  
4        evaluating each said pair of sensed frames with a fitness value inversely  
5        proportional to a time difference between the instant one of the frames of said  
6        each pair is captured and the instant the other frame is captured.

1        24. A topographic measurement system comprising:  
2              at least one image sensor mounted on a vehicle flying over a target  
3        area;  
4              means for sensing a plurality of picture frames at different positions by  
5        using said image sensor;  
6              means for selecting a pair of frames from said plurality of frames, said  
7        pair of frames constituting a stereoscopic image of said target area;  
8              means for determining a parallax between the selected frames and  
9        producing therefrom a first plurality of line-of-sight vectors and a second  
10        plurality of line-of-sight vectors; and  
11              means for converting said first and second pluralities of line-of-sight  
12        vectors to topographic data.

1        25. A topographic measurement system as claimed in claim 24,  
2        wherein said frame selecting means comprises:  
3              frame combining means for combining said candidate frames into a  
4        plurality of pairs of frames which constitute a stereoscopic image of said  
5        target area;  
6              evaluating means for evaluating each of said pairs of frames with a  
7        fitness value indicative of fitness of said each pair of frames to topographic  
8        measurement of said target area; and  
9              decision means for selecting one of said pairs of frames based on  
10        fitness values obtained from all said pairs of sensed frames.

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1        26. A topographic measurement system as claimed in claim 25,  
2 wherein said evaluating means comprises:  
3              a geometric condition analyzer for analyzing said pairs of frames in  
4 terms of their geometric condition and evaluating said pairs of frames with a  
5 fitness value proportional to their image resolution; and  
6              decision making means for making a decision on the fitness values  
7 obtained by all pairs of frames and selecting one of said pairs of frames  
8 having the highest fitness value.

1        27. A topographic measurement system as claimed in claim 26,  
2 wherein said parallax determining means determines a parallax between the  
3 frames of each said pair of frames, and  
4              wherein said evaluating means further comprises frame matching  
5 analyzing means for analyzing said pairs of frames in terms of degree of  
6 match between the paired frames and evaluating said pairs of frames with a  
7 fitness value proportional to an average value of point-to-point correlations  
8 between said paired frames,  
9              wherein said decision making means produces a total value of the  
10 fitness values of each of said pairs of frames and selecting one of said pairs of  
11 frames having the highest total value.

1        28. A topographic measurement system as claimed in claim 25,  
2 wherein said parallax determining means comprises:  
3              frame aligning means for aligning the frames of said selected pair in  
4 orientation; and  
5              correlation calculating means for calculating point-to-point  
6 correlations between the aligned frames.

1        29. A topographic measurement system as claimed in claim 27,  
2 wherein said parallax determining means comprises:

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3 frame aligning means for aligning the frames of said selected pair in  
4 orientation; and  
5 correlation calculating means for calculating point-to-point correlation  
6 values between the aligned frames and supplying the calculated correlation  
7 values to said frame matching analyzing means, and  
8 wherein the frame matching analyzing means calculates said average  
9 value of point-to-point correlations from the correlation values supplied from  
10 the correlation calculating means.

1 30. A topographic measurement system as claimed in claim 27,  
2 wherein said parallax determining means further comprises an interpolator  
3 for interpolating one of the paired frames before said frames are aligned in  
4 orientation so that said frames of said pair have equal value of resolution.

1 31. A topographic measurement system as claimed in claim 25,  
2 wherein said evaluating means further comprises filtering condition  
3 analyzing means for analyzing each of said pairs of frames in terms of  
4 filtering condition and evaluating each said pair of frames with a fitness  
5 value representative of filtering characteristics of image sensors.

1 32. A topographic measurement system as claimed in claim 25,  
2 wherein said evaluating means further comprises sunlight condition  
3 analyzing means for analyzing each of said pairs of combined frames in terms  
4 of sunlight condition and evaluating each said pair of frames with a fitness  
5 value representative of degree of similarity in shadow and shading effects  
6 between the frames of each said pair.

1 33. A topographic measurement system as claimed in claim 25,  
2 wherein said evaluating means further comprises time difference analyzing  
3 means for analyzing each of said pairs of combined frames in terms of time

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4 difference and evaluating each said pair of frames with a fitness value  
5 inversely proportional to a time difference between the instant one of the  
6 frames of said each pair is captured and the instant the other frame is  
7 captured.

1        34. A topographic measurement system as claimed in claim 24,  
2 further comprising storage medium for storing a plurality of picture frames  
3 captured by airborne image sensors, wherein said selecting means selects said  
4 pair of frames from said storage medium.

1        35. A topographic measurement system as claimed in claim 34,  
2 wherein said frame combining means includes area selecting means for  
3 selecting frames covering said target area from all frames stored in said  
4 storage medium.

1        36. A topographic measurement system as claimed in claim 24,  
2 further comprising an image sensing scheduler comprising:  
3            sensor selecting means for selecting at least one airborne image sensor  
4 if an appropriate frame is not available to constitute said stereoscopic image  
5 and sensing picture frames from the selected image sensor;  
6            frame combining means for combining the received picture frames to  
7 form a plurality of pairs of sensed frames which may constitute a stereoscopic  
8 image of said target area;  
9            evaluating means for evaluating each pair of sensed frames with a  
10 fitness value indicative of fitness of said each pair of frames to topographic  
11 measurement of said target area; and  
12          scheduling means for producing a schedule for selecting one or more  
13 airborne sensors based on the fitness values obtained from all pairs of sensed  
14 frames.

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1        37. A topographic measurement system as claimed in claim 36,  
2 wherein said evaluating means of said scheduler comprises a geometric  
3 condition analyzer for analyzing said pairs of sensed frames in terms of their  
4 geometric condition and evaluating said pairs of frames with a fitness value  
5 inversely proportional to quantum errors between the frames of each said  
6 pair.

1        38. A topographic measurement system as claimed in claim 37,  
2 wherein said evaluating means of the scheduler further comprises filtering  
3 condition analyzing means for analyzing each of said pairs of sensed frames  
4 in terms of filtering condition and evaluating each said pair of sensed frames  
5 with a fitness value representative of filtering characteristics of image  
6 sensors.

1        39. A topographic measurement system as claimed in claim 37,  
2 wherein said evaluating means of the scheduler further comprises sunlight  
3 condition analyzing means for analyzing each of said pairs of sensed frames  
4 in terms of sunlight condition and evaluating each said pair of sensed frames  
5 with a fitness value representative of degree of similarity in shadow and  
6 shading effects between the frames of each said pair.

1        40. A topographic measurement system as claimed in claim 37,  
2 wherein said evaluating means of the scheduler further comprises time  
3 difference analyzing means for analyzing each of said pairs of sensed frames  
4 in terms of time difference and evaluating each said pair of sensed frames  
5 with a fitness value inversely proportional to a time difference between the  
6 instant one of the frames of said each pair is captured and the instant the  
7 other frame is captured.

1        41. A topographic measurement system comprising:

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2       at least one image sensor mounted on a vehicle flying over a target  
3   area;  
4       means for sensing a plurality of picture frames at different positions by  
5   using said image sensor;  
6       frame selecting means for selecting a pair of frames from said plurality  
7   of frames of said target area, said selected pair of frames constituting a  
8   stereoscopic image of said target area;  
9       scheduling means for selecting at least one image sensor if an  
10   appropriate frame is not available in said plurality of frames, sensing picture  
11   frames from the selected image sensor, whereby said frame selecting means  
12   uses the sensed frames to select a pair of frames;  
13       means for determining a parallax between the frames selected by the  
14   frame selecting means and producing therefrom a first plurality of line-of-  
15   sight vectors and a second plurality of line-of-sight vectors; and  
16       means for converting said first and second pluralities of line-of-sight  
17   vectors to topographic data.

1       42. A topographic measurement system as claimed in claim 41,  
2   wherein said scheduling means comprises:  
3       frame combining means for combining the received picture frames to  
4   form a plurality of pairs of sensed frames which may constitute a stereoscopic  
5   image of said target area;  
6       evaluating means for evaluating each pair of sensed frames with a  
7   fitness value indicative of fitness of said each pair of frames to topographic  
8   measurement of said target area; and  
9       decision means for producing a schedule for sensing picture frames  
10   from one or more airborne image sensors based on fitness values obtained  
11   from all of said pairs of sensed frames.

1       43. A topographic measurement system as claimed in claim 42,

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2       wherein said evaluating means comprises a geometric condition analyzer for  
3       analyzing said pairs of sensed frames in terms of their geometric condition  
4       and evaluating said pairs of frames with a fitness value inversely  
5       proportional to quantum errors between the frames of each said pair.

1           44. A topographic measurement system as claimed in claim 43,  
2       wherein said evaluating means further comprises filtering condition  
3       analyzing means for analyzing each of said pairs of sensed frames in terms of  
4       filtering condition and evaluating each said pair of sensed frames with a  
5       fitness value representative of filtering characteristics of image sensors.

1           45. A topographic measurement system as claimed in claim 43,  
2       wherein said evaluating means further comprises sunlight condition  
3       analyzing means for analyzing each of said pairs of sensed frames in terms of  
4       sunlight condition and evaluating each said pair of sensed frames with a  
5       fitness value representative of degree of similarity in shadow and shading  
6       effects between the frames of each said pair.

1           46. A topographic measurement system as claimed in claim 43,  
2       wherein said evaluating means further comprises time difference analyzing  
3       means for analyzing each of said pairs of sensed frames in terms of time  
4       difference and evaluating each said pair of sensed frames with a fitness value  
5       inversely proportional to a time difference between the instant one of the  
6       frames of said each pair is captured and the instant the other frame is  
7       captured.

1           47. A computer readable storage medium containing a program  
2       executable by a computer to perform the steps of:  
3           a) selecting a pair of frames from a plurality of candidate picture  
4       frames of a target area captured from different high-altitude positions, said

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5 pair of frames constituting a stereoscopic image of said target area;  
6 b) determining a parallax between the selected frames and  
7 producing therefrom a first plurality of line-of-sight vectors and a second  
8 plurality of line-of-sight vectors; and  
9 c) converting said first and second pluralities of line-of-sight  
10 vectors to topographic data.

1 48. A computer readable storage medium as claimed in claim 45,  
2 wherein step (a) comprises:  
3 a<sub>1</sub>) combining said candidate frames into a plurality of pairs of  
4 frames which constitute a stereoscopic image of said target area;  
5 a<sub>2</sub>) evaluating each of said pairs of frames with a fitness value  
6 indicative of fitness of said each pair of frames to topographic measurement  
7 of said target area; and  
8 a<sub>3</sub>) selecting one of said pairs of frames based on fitness values  
9 obtained from all said pairs of frames.

1 49. A computer readable storage medium as claimed in claim 48,  
2 wherein step (a<sub>2</sub>) comprises:  
3 a<sub>2-1</sub>) analyzing said pairs of frames in terms of their geometric  
4 condition and evaluating said pairs of frames with a fitness value  
5 proportional to their image resolution; and  
6 a<sub>2-2</sub>) making a decision on the fitness values obtained by all pairs of  
7 frames and selecting one of said pairs of frames having the highest fitness  
8 value.

1 50. A computer readable storage medium as claimed in claim 48,  
2 wherein step (b) determines a parallax between the frames of each said pair  
3 of frames, and  
4 wherein step (a<sub>2</sub>) further comprises the step (a<sub>2-3</sub>) of analyzing said

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5 pairs of frames in terms of degree of match between the paired frames and  
6 evaluating said pairs of frames with a fitness value proportional to an  
7 average value of point-to-point correlations between said paired frames,  
8 wherein step (a<sub>2-2</sub>) produces a total value of the fitness values of each  
9 of said pairs of frames and selecting one of said pairs of frames having the  
10 highest total value.

1 51. A computer readable storage medium as claimed in claim 47,  
2 wherein step (b) comprises:  
3 b<sub>1</sub>) aligning the frames of said selected pair in orientation; and  
4 b<sub>2</sub>) calculating point-to-point correlations between the aligned  
5 frames.

1 52. A computer readable storage medium as claimed in claim 50,  
2 wherein step (b) comprises:  
3 b<sub>1</sub>) aligning the frames of said selected pair so that the frames are  
4 equally oriented; and  
5 b<sub>2</sub>) calculating point-to-point correlation values between the  
6 aligned frames, and  
7 wherein step (a<sub>2-3</sub>) calculates said average value of point-to-point  
8 correlations from the correlation values calculated by step (b<sub>2</sub>).

1 53. A computer readable storage medium as claimed in claim 51,  
2 wherein step (b) further comprises interpolating one of the paired frames  
3 before step (b<sub>1</sub>) is performed so that said frames of said pair have equal value  
4 of resolution.

1 54. A computer readable storage medium as claimed in claim 49,  
2 wherein step (a<sub>2</sub>) further comprises analyzing each of said pairs of frames in  
3 terms of filtering condition and evaluating each said pair of frames with a

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4 fitness value representative of filtering characteristics of image sensors.

1 55. A computer readable storage medium as claimed in claim 49,  
2 wherein step (a<sub>2</sub>) further comprises analyzing each of said pairs of combined  
3 frames in terms of sunlight condition and evaluating each said pair of frames  
4 with a fitness value representative of degree of similarity in shadow and  
5 shading effects between the frames of each said pair.

1 56. A computer readable storage medium as claimed in claim 49,  
2 wherein step (a<sub>2</sub>) further comprises analyzing each of said pairs of combined  
3 frames in terms of time difference and evaluating each said pair of frames  
4 with a fitness value inversely proportional to a time difference between the  
5 instant one of the frames of said each pair is captured and the instant the  
6 other frame is captured.

1 57. A computer readable storage medium as claimed in claim 47,  
2 further comprising the steps of:

3 c) selecting at least one airborne image sensor if an appropriate  
4 frame is not available to constitute said stereoscopic image and sensing  
5 picture frames from the selected image sensor;

6 d) combining the received picture frames to form a plurality of  
7 pairs of sensed frames which may constitute a stereoscopic image of said  
8 target area;

9 e) evaluating each pair of sensed frames with a fitness value  
10 indicative of fitness of said each pair of frames to topographic measurement  
11 of said target area; and

12 f) producing a schedule for selecting one or more airborne sensors  
13 based on the fitness values obtained from all pairs of sensed frames.

1 58. A computer readable storage medium as claimed in claim 57,

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2 wherein step (e) comprises analyzing said pairs of sensed frames in terms of  
3 their geometric condition and evaluating said pairs of frames with a fitness  
4 value inversely proportional to quantum errors between the frames of each  
5 said pair.

1 59. A computer readable storage medium as claimed in claim 57,  
2 wherein step (e) further comprises analyzing each of said pairs of sensed  
3 frames in terms of filtering condition and evaluating each said pair of sensed  
4 frames with a fitness value representative of filtering characteristics of image  
5 sensors.

1 60. A computer readable storage medium as claimed in claim 57,  
2 wherein step (e) further comprises analyzing each of said pairs of sensed  
3 frames in terms of sunlight condition and evaluating each said pair of sensed  
4 frames with a fitness value representative of degree of similarity in shadow  
5 and shading effects between the frames of each said pair.

1 61. A computer readable storage medium as claimed in claim 57,  
2 wherein step (e) further comprises analyzing each of said pairs of sensed  
3 frames in terms of time difference and evaluating each said pair of sensed  
4 frames with a fitness value inversely proportional to a time difference  
5 between the instant one of the frames of said each pair is captured and the  
6 instant the other frame is captured.

1 62. A computer readable storage medium containing a program  
2 executable by a computer to perform the steps of:  
3 a) selecting a pair of frames from a plurality of candidate frames of  
4 a target area captured from high-altitude positions, said selected pair of  
5 frames constituting a stereoscopic image of said target area;  
6 b) selecting at least one airborne image sensor if an appropriate

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7 frame is not available in said plurality of candidate frames, sensing picture  
8 frames from the selected image sensor and repeating step (a) whereby a new  
9 pair of frames is selected;

10 c) determining a parallax between the selected frames and  
11 producing therefrom a first plurality of line-of-sight vectors and a second  
12 plurality of line-of-sight vectors; and

13 d) converting said first and second pluralities of line-of-sight  
14 vectors to topographic data.

1 63. A computer readable storage medium as claimed in claim 62,  
2 wherein step (a) comprises:

3 a<sub>1</sub>) combining the received picture frames to form a plurality of  
4 pairs of sensed frames which may constitute a stereoscopic image of said  
5 target area; and

6 a<sub>2</sub>) evaluating each pair of sensed frames with a fitness value  
7 indicative of fitness of said each pair of frames to topographic measurement  
8 of said target area.

1 64. A computer readable storage medium as claimed in claim 63,  
2 wherein step (a<sub>2</sub>) comprises analyzing said pairs of sensed frames in terms of  
3 their geometric condition and evaluating said pairs of frames with a fitness  
4 value inversely proportional to quantum errors between the frames of each  
5 said pair.

1 65. A computer readable storage medium as claimed in claim 64,  
2 wherein step (a<sub>2</sub>) further comprises analyzing each of said pairs of sensed  
3 frames in terms of filtering condition and evaluating each said pair of sensed  
4 frames with a fitness value representative of filtering characteristics of image  
5 sensors.

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1        66. A computer readable storage medium as claimed in claim 64,  
2 wherein step (a<sub>2</sub>) further comprises analyzing each of said pairs of sensed  
3 frames in terms of sunlight condition and evaluating each said pair of sensed  
4 frames with a fitness value representative of degree of similarity in shadow  
5 and shading effects between the frames of each said pair.

1        67. A computer readable storage medium as claimed in claim 64,  
2 wherein step (a<sub>2</sub>) further comprises analyzing each of said pairs of sensed  
3 frames in terms of time difference and evaluating each said pair of sensed  
4 frames with a fitness value inversely proportional to a time difference  
5 between the instant one of the frames of said each pair is captured and the  
6 instant the other frame is captured. .

1        68. A computer readable storage medium as claimed in claim 64,  
2 wherein step (a<sub>2</sub>) further comprises analyzing each of said pairs of frames in  
3 terms of degree of match between the frames of each pair and evaluating each  
4 said pair of frames with a fitness value proportional to an average value of  
5 point-to-point correlations between said paired frames.